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(56) Documents cited

US 4640539 A US 4575890 A US 4083075 A

(58) Field of search

UK CL (Edition K) A4F

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Online databases: WPI

(54) Cleaning device

(57) A cleaning device comprising an outer casing containing first and second internal rotary support spools: the first internal support spool 2 being located to support a roll of adhesive tape 14 for unwinding and the second internal support spool 3 being located to support a roll of adhesive tape for winding the pressure sensitive adhesive tape so that its adhesive surface faces outwards; and wherein between the two support spools the adhesive tape is exposed over a pre-determined surface area 5 of the casing with its adhesive surface facing outwards such that it can be pressed onto the surface of a textile to adhere to and remove unwanted debris such as loose fibres and hairs.

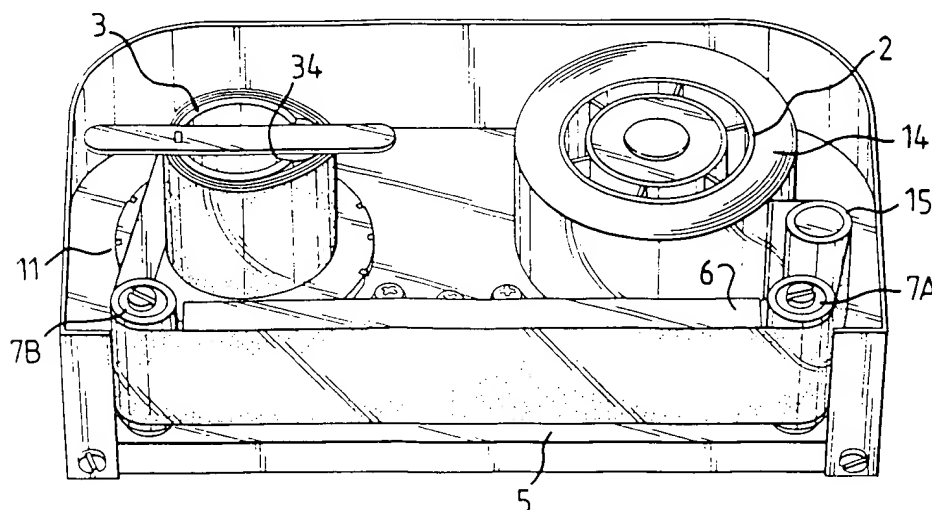


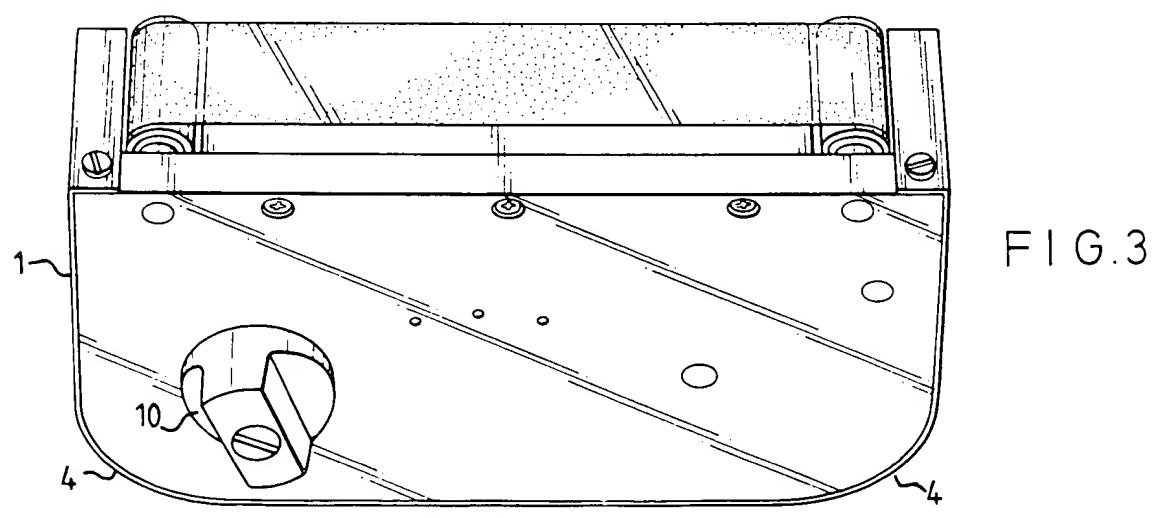
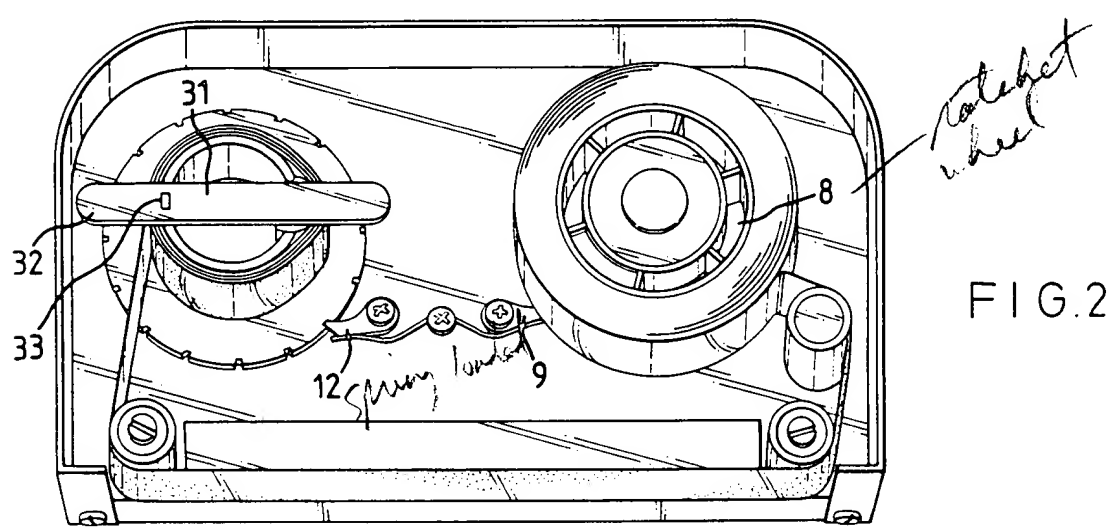
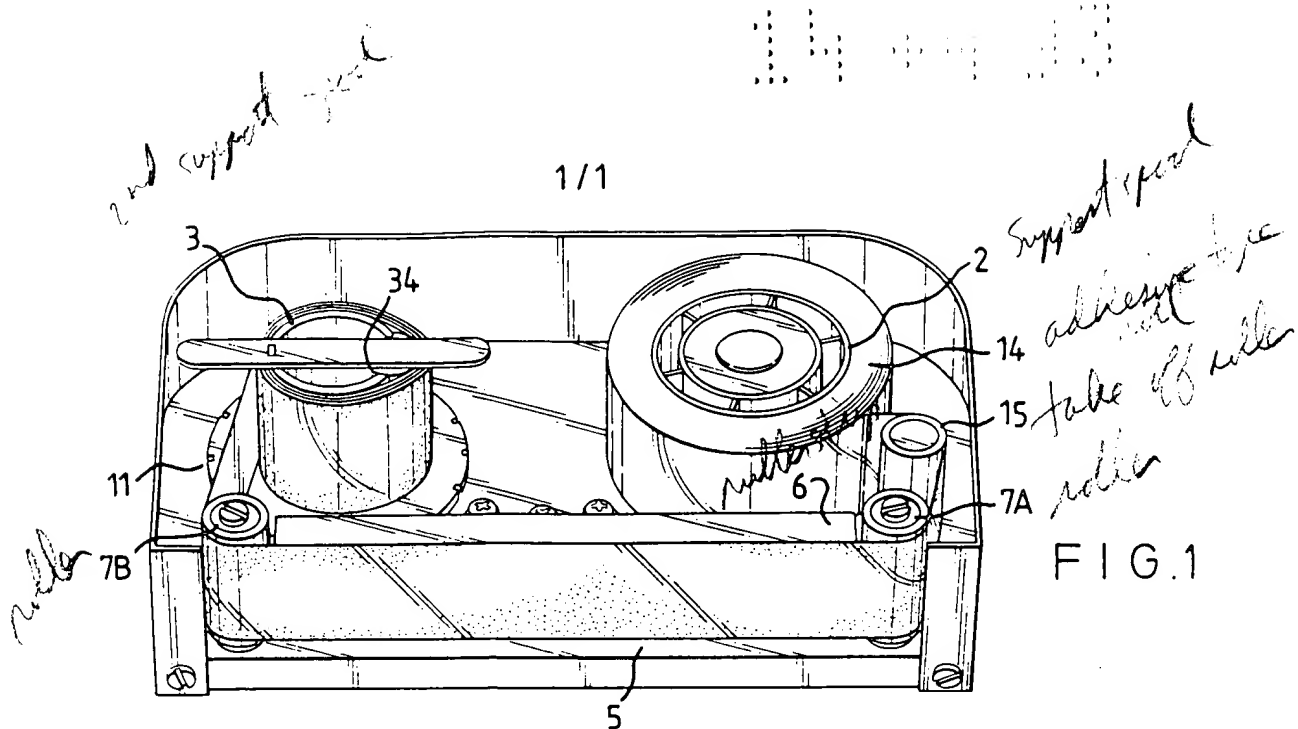
FIG. 1

At least one drawing originally filed was informal and the print reproduced here is taken from a later filed formal copy.

The print reflects an assignment of the application under the provisions of Section 30 of the Patents Act 1977.

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A CLEANING DEVICE

This invention relates to a cleaning device, and in particular a cleaning device suitable for removing debris, such as loose hairs and fibres, located at and loosely attached to the surface of textiles.

One type of known cleaning device for this purpose presently on the market comprises a main cylindrical body supporting a roll of pressure-sensitive adhesive tape which is rolled over the surface of textiles with its adhesive surface facing outwards such that any loose fibres and hairs are caused to adhere to the adhesive roll and are thus removed from the surface of the textile. When the adhesive surface is completely covered with fibres and hairs and is no longer sticky, the top layer of the adhesive tape can be peeled off to expose a fresh sticky adhesive surface of the layer of adhesive tape underneath.

These cleaning devices have the disadvantage that specially made and otherwise adapted pressure-sensitive adhesive tape needs to be purchased.

GB 2 233 884A discloses a cleaning device which comprises a first and a second roller both with rotary

axes extending perpendicularly from an elongate grasping handle, with a roll of adhesive tape supported upon the first roller. The roll of adhesive tape is unwound from the first roller and rolled up again around the ratcheted second roller with its adhesive surface facing outwards. This adhesive surface is pressed on to textile surfaces while the roller rolls, in order to remove loose fibres and hairs etc. attached thereto.

The disadvantage of this invention is that only a small surface area of textile may be cleaned at any one time and, consequently, to clean a large surface area, a large amount of tape is used rather lightly.

The aim of the present invention is to provide a cleaning device which utilizes generally available pressure-sensitive adhesive tape, which is easily obtainable and is normally kept in houses and offices.

A further aim of the present invention is to provide a cleaning device which exposes a large surface area of pressure-sensitive adhesive tape, so that a large surface area of textile can be cleaned relatively quickly.

A still further aim of the present invention is to provide a cleaning device which is compact in order that it may be carried around in handbags and luggage, etc.

According to the present invention there is provided a cleaning device comprising an outer casing containing first and second internal rotary support spools: the first internal support spool being located to support a roll of pressure-sensitive adhesive tape for unwinding and the second internal support spool being located to support a roll of pressure-sensitive adhesive tape for winding the pressure-sensitive adhesive tape so that its adhesive surface faces outwards; and wherein between the two support spools the pressure-sensitive adhesive tape is exposed over a pre-determined surface area of the casing with its adhesive surface facing outwards such that it can be pressed onto the surface of a textile to adhere to and remove unwanted debris such as loose fibres and hairs.

The first and second internal support spools may be ratcheted to immobilise the intermediate exposed pressure-sensitive adhesive tape.

There may be a direction-change idly mounted roller at one or each end of the pre-determined surface area.

The invention will be further described with reference to the accompanying drawings, in which:

Figure 1 is a perspective view from the front showing the internal components of one embodiment of a cleaning device of the present invention;

Figure 2 is a perspective view from above of the same embodiment as shown in Figure 1.

Figure 3 is a perspective view of the underside of Figure 2.

The cleaning device shown in Figure 1 comprises an outer flat casing 1, a first internal support spool 2, and a second internal support spool 3.

The outer flat casing 1 is rectangular in shape with two chamfered corners 4 on one of its longitudinal sides, and a cut away longitudinal strip 5 on its other longitudinal side. The cut away longitudinal strip 5 is generally filled with a rubber strip 6 and two direction-change rollers 7A and 7B, one on either side of the rubber strip 6. The direction-change rollers 7A and 7B are coated with an elastomeric material.

The first internal support spool 2 is cylindrical in shape, and has an integral toothed ratchet wheel 8 at its base, the teeth of which engage with a spring-loaded pawl 9.



The second internal support spool 3 is attached to a knob 10 on the external surface of the casing 1, and has an integral toothed ratchet wheel 11 at its base, the teeth of which engage with a spring-loaded pawl 12. The support spool 3 also has means for reducing its diameter so that adhesive tape wrapped therearound can be easily removed. The means comprises a strip 31 which can be lifted up at end 32, free from holding pin 33, and rotated clockwise to reduce the diameter of the support spool 3. Rotation of the strip 31 clockwise causes a gate-like mechanism to operate at 34. This gate-like mechanism is used to secure the end of the pressure-sensitive adhesive tape to the support spool 3.

To prepare the cleaning device for use, a roll of adhesive tape 14 is supported on the first internal support spool 2, and the adhesive tape is unwound from the roll 14 and guided with its adhesive surface on the outside around: i an internal elastomeric-coated take-off roller 15 of the casing 1; ii the direction-change roller 7A; iii the outer surface of the rubber strip 6; iv the direction-change roller 7B; and v the support spool 3 and secured using the gate-like mechanism.

In use, the adhesive tape lying along the outer surface of the rubber strip 6 with its adhesive surface facing

outwards is pressed down onto a textile surface so that loose fibres and hairs on the surface of the textile adhere to the adhesive tape and are thereby removed from the textile.

When the adhesive tape lying on the outer surface of the rubber strip 6 has been used to clean the surface of textiles and is no longer sticky, the knob 10 can be turned so that the used tape is wound around the support spool 3 and a new sticky strip of adhesive tape unwinds from the roll of adhesive tape 14 and lies along the outer surface of the rubber strip 6.

The above mentioned procedure is carried out until all of the adhesive tape on the roll 14 has been unwound. The roll 14 is then replaced by a new roll.

Preferably, when the cleaning device is not in use, the adhesive tape lying on the outer surface of the rubber strip 6 is covered by a removable protective cover.

The cleaning device is preferably made of a plastics material.

CLAIMS:

1. A cleaning device for textile surfaces and the like comprising an outer casing containing first and second internal rotary support spools: the first internal support spool being located to support a roll of adhesive tape for unwinding and the second internal support spool being located to support a roll of adhesive tape for winding the pressure sensitive adhesive tape so that its adhesive surface faces outwards; and wherein between the two support spools the adhesive tape is exposed over a pre-determined surface area of the casing with its adhesive surface facing outwards such that it can be pressed onto the surface of a textile to adhere to and remove unwanted debris such as loose fibres and hairs.

2. A cleaning device as claimed in claim 1 in which the first and second internal support spools are ratcheted to immobilise the intermediate exposed pressure-sensitive adhesive tape.

3. A cleaning device as claimed in claim 1, wherein the said spools are spring-loaded.

4. A cleaning device as claimed in claims 1, 2 or 3,  
wherein the adhesive tape exposed on the surface of the  
casing with its adhesive surface facing outwards lies on  
an elastomeric support.

5. A cleaning device as hereinbefore described with  
reference to and as illustrated in the accompanying  
drawings.

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**Patents Act 1977**  
**Examiner's report to the Comptroller under**  
**Section 17 (The Search Report)**

Application number

9201379.6

**Relevant Technical fields**

(i) UK CI (Edition ) A4F

(ii) Int CI (Edition ) A47L

**Databases (see over)**

(i) UK Patent Office

(ii) ONLINE DATABASES : WPI

**Search Examiner**

G HEMSLEY

**Date of Search**

5 MARCH 1992

Documents considered relevant following a search in respect of claims 10-15 and 19-30 as originally filed

Category (see over)	Identity of document and relevant passages	Relevant to claim(s)
X, Y	US 4640539 LA PORTE column 3 line 40 to column 4 line 65	1
X, Y	US 4575890 HIDLE	1, 2, 3
X, Y	US 4083075 HESTER column 1 line 66 to column 3 line 30	1, 2, 3



Category	Identity of document and relevant passages	Relevant to claim(s)

### Categories of documents

X: Document indicating lack of novelty or of inventive step.

Y: Document indicating lack of inventive step if combined with one or more other documents of the same category.

A: Document indicating technological background and/or state of the art.

P: Document published on or after the declared priority date but before the filing date of the present application.

E: Patent document published on or after, but with priority date earlier than, the filing date of the present application.

&: Member of the same patent family, corresponding document.

**Databases:** The UK Patent Office database comprises classified collections of GB, EP, WO and US patent specifications as outlined periodically in the Official Journal (Patents). The on-line databases considered for search are also listed periodically in the Official Journal (Patents).